St. Joseph River
St. Joseph County
2006 Angler Creel Report

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EXECUTIVE SUMMARY

- A roving creel survey of the St. Joseph River was conducted from March 1 to November 28, 2006. The fifteen mile stretch of river was divided into three sites; 388, 389, and 390. Site 388 is located from the Indiana-Michigan state line upstream to the South Bend Dam, section 389 is located from the South Bend Dam upstream to the Mishawaka Dam, and section 390 is located between the Mishawaka Dam and the Twin Branch Dam.

- During the survey anglers caught 84,623 fish with 19,458 of these fish being harvested.

- During the survey period anglers fished for a total of 137,506 hours. This was the highest recorded angler effort since the 2000 survey. Angler effort was greatest during the month of October followed by September and April.

- Smallmouth bass ranked first in angler catch and fourth in angler harvest. A total of 26,474 smallmouth bass were caught during the survey, with 2,002 of those fish harvested.

- Bluegill ranked second in angler catch and first in angler harvest. A total of 21,982 bluegill were caught during the survey, with 6,897 of those fish harvested.

- A total of 11,136 steelhead were caught during the 2006 survey. Of those fish caught, 6,448 were equal or greater than the minimum size limit of 14 in. Of those legal fish caught 4,411 were harvested. Steelhead ranked fourth in angler catch and second in angler harvest.

- The average size of harvested steelhead during this survey was considerably smaller when compared to the average size from 1999 to 2005.

- Steelhead trout were targeted more by anglers than any other fish during the survey, accounting for 37.4% of the responses.

- Anglers from 35 Indiana counties were represented during this survey. Anglers from 15 counties were represented during the 1986 survey.

- The St. Joseph River continues to provide anglers with diverse fishing opportunities. There are very few places in the state where such a wide variety of quality game species can be caught during a single fishing trip.

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INTRODUCTION

The objective of this survey was to evaluate the catch, harvest, and effort by anglers on the St. Joseph River. Previous angler creel surveys have been completed on this stretch of river in 1985, 1986, and 1992 through 2005. The 1985 and 1986 surveys were six months long and conducted by Indiana (Robertson 1985, Ledet and Koza 1986). The surveys conducted from 1992 through 2005 were conducted in cooperation with Michigan DNR and analyzed by Michigan.

STUDY SITE

The St. Joseph River originates in Hillsdale County, Michigan, and flows through Calhoun, Branch and St. Joseph Counties before entering Indiana. In Indiana the river flows through Elkhart and St. Joseph Counties, before reentering Berrien County, Michigan just north of South Bend, and eventually draining into Lake Michigan. The river drains approximately 2,600 square miles of southwestern Michigan and 1,685 square miles of north central Indiana (Ledet 1979). The Indiana portion of the watershed encompasses all of Lagrange and portions of Elkhart, Dekalb, Kosciusko, Noble, St. Joseph, and Steuben Counties. The St. Joseph River is considered navigable throughout Indiana (39.57 river miles).

There is good public access available along Indiana's portion of the St. Joseph River. There are twelve public boat ramps located along the river, with all but four located in St. Joseph County. Due to the number of county parks, city parks, and state access sites, there is extensive shore access available to anglers as well. Bank fishing is prohibited by South Bend in portions of the city; however wading is not restricted.

There are twelve dams located on the river, four of which are located in Indiana; South Bend Dam, Mishawaka (Uniroyal) Dam, Twin Branch Dam, and Elkhart Dam. As expected, these dams have significantly altered the river's flow regime and habitat from its original state. The St. Joseph River has been host to introduced salmonids since the late 1960's. By 1992, 63 miles of river were made available for salmonid angling opportunities following the completion of fish ladders at the Berrien Springs, Buchanan, Niles, South Bend and Mishawaka dams (Dexter and Ledet 1994). The setting for this survey includes a 15-mile stretch of river located in Indiana, from the Indiana-Michigan state line to the Twin Branch dam.

METHODS

A roving creel survey of the St. Joseph River was conducted from March 1 to November 28, 2006. The fifteen mile stretch of river was divided into three sites; 388, 389, and 390 (Figure 1). Site labels were designated by the Michigan DNR, and are consistent with past surveys. Site 388 is located from the Indiana-Michigan state line 7.5 miles upstream to the South Bend Dam, section 389 is located from the South Bend Dam upstream 4 miles to the Mishawaka Dam, and section 390 is located from the Mishawaka Dam 3.5 miles to the Twin Branch Dam. Each month was sampled equally, with twenty days surveyed per month. Each day to be surveyed was divided into two 7.5-hour shifts; shift A ran from 6:00 a.m. to 1:30 p.m., while shift B ran from 1:30 p.m. to 9:00 p.m. A stratified random sampling design was used to select the days, sites, and shifts to be sampled. Fishing pressure was assumed to be higher on weekends as opposed to weekdays, 8 weekend days while only 12 weekdays were sampled monthly, with no more than 10 days sampled in any two week period. Due to administrative constraints, holidays were not sampled. The secondary sampling units (site and shift) were given equal probability and selected randomly without replacement.

Instantaneous angler counts were conducted three times during each shift to estimate total fishing pressure on the river. Count times were selected using systematic random sampling as outlined in chapter 11.3 of Pollock et al. (1994). At these designated times the creel clerk traveled the length of the site counting each individual shore angler and boat trailer at each boat ramp. The average number of anglers per boat was based on interviews for the month. No counts were conducted during the last ½ hour of the shift, to allow time for final interviews. Effort calculations are outlined in chapter 15 of Pollock et al. (1994).

Angler interviews were conducted to estimate total catch and harvest. Interviews were conducted throughout the shift and as anglers completed their trip. Both complete and incomplete trip interviews were recorded, but were treated as complete trip interviews when calculating total catch and harvest (Pollock et al. 1994). During each interview the clerk recorded the start and end times of the trip, if the trip was complete, number in party, county of residence, fishing location, what fish the party was targeting, and if the party was fishing from shore or by boat. The creel clerk also recorded the number and species of fish harvested as well as those reported caught and released. The number of steelhead, smallmouth bass, and walleye caught and released that were smaller than the legal size limit were also noted. The total length

of each game fish harvested was measured to the nearest 0.5 in. The weight (collected to the nearest 0.01 lb.), length (collected to the nearest 0.1 in), sex, and fin clips of all salmonids were also recorded. Lastly, anglers were asked to rate the importance and quality of the fishery, based on a scale of 1 to 5, with 5 being the highest degree of importance and satisfaction. The questions were based on the anglers targeted species and were worded in the following manner; rate the importance you place on having (enter targeted species) in the St. Joseph River, and overall, rate your satisfaction on the quality of the (enter targeted species) fishery in the river.

RESULTS

During the 2006 St. Joseph River creel survey anglers caught 84,623 fish with 19,458 of those fish being harvested (Table 1, Table 2). Angler catch was greatest during the month of October followed by September and April. The lowest catch was documented during the month of March followed by May and November. Angler catch was greatest at sites 390 and 389, with 38,361 and 28,941 fish caught, respectively (Table 3). Shore anglers accounted for 61% of the catch (Table 4). However, boat anglers exhibited a catch rate of 0.9 fish/h, while shore anglers had a lower catch rate of 0.5 fish/h.

Angler harvest was greatest during the month of September followed by June and May (Table 2). The lowest harvest was documented during the month of March followed by November and April. Angler harvest was highest at sites 390 and 389, with 9,710 and 6,814 fish harvested, respectively (Table 3). Shore anglers harvested 15,913 fish, while boat anglers harvested only 3,545 (Table 4).

During the survey period anglers fished for a total of 137,506 hours (Table 1). This was the highest recorded angler effort since the 2000 survey (Table 5). Angler effort was greatest during the month of October followed by September and April. The lowest effort was documented during the month of March followed by May and November. Shore and boat effort was greatest at site 390 (Table 6). When shore and boat effort is combined, weekday effort was greater than weekend effort at all three sites. However, boaters expended more effort on weekends rather than weekdays, at sites 390 and 389. Average complete trip length was 2.6 hours (SE = 0.08) for shore anglers and 4.4 hours (SE = 0.15) for boat anglers. Average boat party size was 1.8 anglers (SE = 0.05).

Smallmouth Bass

Smallmouth bass ranked first in angler catch and fourth in angler harvest. A total of 26,474 smallmouth bass were caught during the survey, with 2,002 of those fish harvested (Table 1, Table 2). This was the largest harvest of smallmouth recorded since the 1998 survey (Table 5). Smallmouth catch was greatest during the month of August followed by June. The lowest smallmouth catch was documented during the months of March and November. Smallmouth harvest was greatest during the month of June followed by August. No smallmouth bass were harvested during March or November. Smallmouth Bass catch and harvest was greatest at site 388 (Table 3). While boat anglers caught more smallmouth bass, shore anglers harvested a greater number (Table 4). Harvested smallmouth bass had an average length of 13.0 in (SE = 0.14), and ranged from 12.0 to 18.5 in (Table 7, Figure 2).

Bluegill

Bluegill ranked second in angler catch and first in angler harvest. A total of 21,982 bluegill were caught during the survey, with 6,897 of those fish harvested (Table 1, Table 2). This was the largest harvest of bluegill recorded since the 2000 survey (Table 5). Bluegill catch was greatest during the month of June and lowest during November. Harvest was greatest during September followed by August. Bluegill catch and harvest was greatest at site 390 (Table 3). Shore anglers made up the majority of the catch and harvest of bluegill (Table 4). Harvested bluegill had an average length of 6.5 in (SE = 0.06), and ranged from 3.5 to 10.0 in (Table 7, Figure 3).

Rock Bass

Rock bass ranked third in angler catch and third in angler harvest. A total of 16,662 rock bass were caught during the survey, with 4,148 of those fish harvested (Table 1, Table 2). This was the largest harvest of rock bass recorded during any survey (Table 5). Rock bass catch was greatest during the month of May and lowest during March. Harvest was greatest during the month of May. No rock bass were harvested during the months of March and November. Rock bass catch and harvest was greatest at site 389 (Table 3). Shore anglers made up the majority of the catch and harvest of rock bass (Table 4). Harvested rock bass had an average length of 7.0 in (SE = 0.08), and ranged from 4.0 to 9.5 in (Table 7, Figure 4).

Steelhead Trout

A total of 11,136 steelhead were caught during the 2006 survey (Table 1). Of those fish caught, 6,448 were equal or greater than the minimum size limit of 14 in. Of those legal fish

caught 4,411 were harvested, with 2,037 being voluntarily released (Table 2). Steelhead ranked fourth in angler catch and second in angler harvest. Steelhead catch was greatest during the month of April, followed closely by October. Only sub-legal steelhead were caught during May and June. The greatest number of sub-legal steelhead were caught in May at site 390 (Table 1, Table 3). Steelhead harvest was greatest during the month of October, followed by April. The greatest catch and harvest was exhibited at site 390. At site 388, an estimated 85% of the legal steelhead caught were released. Overall, shore anglers caught and harvested more steelhead than boat anglers (Table 4).

The mean length and weight of harvested female steelhead was 27.0 in (SE = 0.2) and 6.0 lb (SE = 0.1) (Table 8, Figure 5). The mean length and weight of harvested male steelhead was 28.7 in (SE = 0.2) and 7.1 lb (SE = 0.2). The largest measured steelhead was 36.8 in and 14.3 lb. The smallest was 17.0 in and 1.6 lb. The mean length and weight of harvested female steelhead from 1999 to 2005 was 27.8 in (SE < 0.01) and 7.1 lb (SE < 0.01). The mean length and weight of harvested male steelhead from 1999 to 2005 was 29.2 in (SE < 0.01) and 8.3 lb (SE < 0.01).

Walleye

Walleye ranked fifth in angler catch and fifth in angler harvest. A total of 2,883 walleye were caught during the survey, with 901 of those fish harvested (Table 1, Table 2). Walleye catch was greatest during the month of November followed by July. The lowest walleye catch was documented during the months of March and April, respectively. Walleye harvest was greatest during the month of July followed by June. No walleye were harvested during March. Walleye catch was greatest at site 390, while walleye harvest was greatest at site 389 (Table 3). A greater number of legal size walleye were caught at site 389 as well. Shore anglers made up the majority of the catch and harvest of walleye (Table 4). Harvested walleye had an average length of 17.0 in (SE = 0.38), and ranged from 15.0 to 26.0 in (Table 7, Figure 6).

Channel Catfish

While channel catfish were consistently caught throughout the survey, angler catch and harvest was greatest during March (Table 1, Table 2). Channel catfish catch and harvest was greatest at site 390 (Table 3). Shore anglers made up the majority of the catch and harvest of channel catfish (Table 4). Harvested channel catfish had an average length of 18.0 in (SE = 1.36), and ranged from 6.5 to 26.5 in (Table 7). During the survey only one harvested channel catfish was identified as not meeting the minimum size limit of 10 inches.

Targeted Species

Steelhead trout were targeted more by anglers than any other fish during the survey, accounting for 37.4% of the responses (Table 9). Anglers targeting steelhead trout accounted for 1% of the responses during the 1986 survey (Ledet and Koza 1986). Anglers claiming to be fishing for anything made up 28.6% of the responses. Smallmouth bass, walleye, and bluegill were also among the top five targeted species, accounting for 13.3%, 8.6%, and 4.5% of the responses, respectively. Steelhead trout made up the majority of the fish targeted during March, April, September, October, and November (Table 10). The response of "anything" dominated all other months.

Angler Residence

Anglers from 35 Indiana counties were represented during this survey (Table 11). Anglers from13 and 15 counties were represented during the 1985 and 1986 surveys, respectively (Robertson 1985, Ledet and Koza 1986). The majority of Indiana anglers interviewed were from St Joseph County, accounting for 78.3% of all anglers. The bordering counties of Elkhart and Marshall accounted for 11.0% and 1.4% of the anglers, respectively. Anglers from 13 different states were also represented during this survey, with the majority of these anglers from Illinois and Michigan.

Angler Response

During the interview process anglers were asked to rate the importance they placed on having the species they were targeting in the St. Joseph River, and to rate their overall satisfaction on the quality of that specific fishery in the river. Overall anglers felt it was very important to important to have their targeted species in the St. Joseph River (Table 12). Less than 2% of anglers gave an answer of 3, and no anglers responded with a rating of 1 or 2. The majority of anglers felt very satisfied to satisfied about the quality of their targeted fishery in the river (Table 13). Less than 20% of anglers gave a response with a rating of 1, 2, or 3.

DISCUSSION

An average number of steelhead were harvested from the St. Joseph River during 2006. When you exclude the 2004 harvest, which was only slightly larger than 2006, the 2006 harvest totals were the largest recorded since the 2000 survey (Figure 7). The 2006 catch of steelhead was much higher than recent surveys; however this is enhanced by the large number of smolts

caught during April and May. These sub-legal catches are likely due to the spring stocking conducted by state hatchery personnel. All three sections of the river are producing good steelhead angling opportunities, however site 388 is the most unique with the majority of the catch being released. Also, while the other sections of the river yield catches of steelhead during spring and fall, the bulk of the catch at site 388 is taken during the spring. These differences are likely due to the high percentage of fly fisherman, as well as the lack of access immediately below the South Bend dam. The average size of harvested steelhead during this survey was considerably smaller when compared to the average size from 1999 to 2005. This is likely due to the decline in the Lake Michigan forage base over the past few years, most notably alewife (Palla 2006).

The native species of the St. Joseph River continue to provide excellent angling opportunities. The catch and harvest of smallmouth bass and bluegill have remained consistent over the last several years, and continue to be the back bone of the summer fishery. While rock bass have displayed an increase in harvest during recent years, channel catfish have shown a substantial decline in harvest since the mid 1980's (Figure 8). This decline is likely due to the decrease in anglers targeting channel catfish. In 1986 26.8% of anglers interviewed claimed to be fishing for channel catfish, while only 4.1% claimed to be targeting channel catfish in 2006 (Ledet and Koza 1986). The decline of anglers targeting channel catfish could be the result of anglers switching preferences toward steelhead following their introduction. Thus, the percentage of anglers now targeting steelhead is likely responsible for some of this decline.

Current Angler preference has shifted dramatically from the 1986 survey. Steelhead now dominate angler preference, however smallmouth bass remain high on the list of targeted species. As expected, the St. Joseph River is attracting anglers from a wider area since the introduction of trout and salmon into Indiana's portion of the river. The number of local anglers is still very high, but the diversity of Indiana counties represented in the creel has more than doubled since 1986 (Ledet and Koza 1986). Angler effort has also increased since the introduction of trout and salmon, however the creel surveys conducted in 1985 and 1986 were conducted from May through October, so it is impossible to compare March, April, and November totals. There was a slight decline in angler effort from 2001 to 2004, but 2006 effort totals were similar to those estimated during the late 1990's (Figure 9).

The St. Joseph River continues to provide anglers with diverse fishing opportunities. There are very few places in the state where such a wide variety of quality game fish can be caught during a single fishing trip. This combined with great public access makes the St. Joseph River a special place to fish.

RECOMMENDATIONS

- The DFW should conduct a complete general survey of the St. Joseph River within the next few years to update information about the river's native fish population. This will also allow comparisons between fish abundance and angler catch.

- The DFW should conduct another St. Joseph River creel survey in 2009 or 2010, to correspond with the Michigan DNR survey.

- The DFW should continue with the annual target stocking rate of 306,000 steelhead for the St. Joseph River (Table 14).

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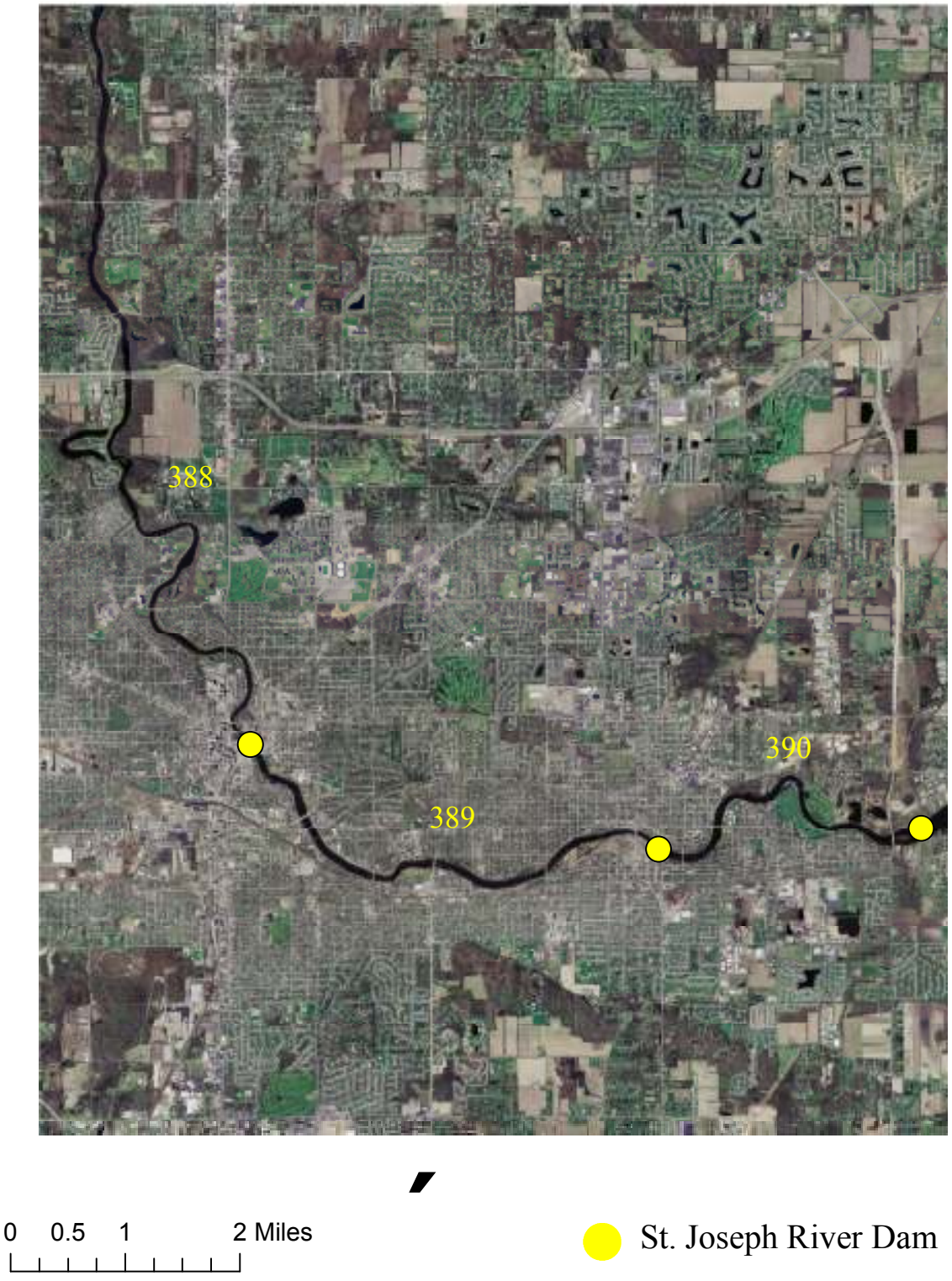

Figure 1. Location of St. Joseph River creel survey sites sampled during 2006.

Table 1. Monthly angler catch and angler effort by species on the St. Joseph River during 2006.

Species	March	April	May	June	July	August	September	October	November	Total
Smallmouth Bass	18	2,619	3,129	7,009	4,443	7,309	1,556	332	60	26,474
Bluegill	238	506	2,018	6,185	3,409	3,722	4,211	1,475	218	21,982
Rock Bass	34	915	4,457	4,067	3,728	1,725	1,167	518	51	16,662
Steelhead Trout	842	1,901	0	0	20	33	1,225	1,714	712	6,448
Steelhead Trout Sub-legal	31	1,411	2,546	668	0	0	16	17	0	4,689
Walleye	37	98	142	504	535	257	138	326	846	2,883
Sucker Species	32	373	49	73	43	35	340	390	6	1,342
Pumpkinseed	0	0	0	513	125	554	83	0	0	1,275
Largemouth Bass	0	398	69	126	142	151	193	35	0	1,115
Common Carp	0	81	192	28	202	41	46	8	0	599
Channel Catfish	91	36	48	60	45	24	67	87	6	464
Crappie	0	0	207	12	0	11	0	72	0	301
Yellow Perch	0	0	0	87	21	53	0	0	0	161
Chinook Salmon	0	0	0	0	0	0	0	157	0	157
Coho Salmon	0	0	0	0	0	0	45	0	0	45
Brown Trout	0	0	0	0	0	0	20	0	8	28
Total	1,325	8,338	12,858	19,331	12,713	13,914	9,106	5,131	1,907	84,623
Angler Hours	7,374	18,805	10,049	17,387	13,722	13,676	20,880	25,443	10,171	137,506
Shore Hours	3,793	15,717	8,259	13,062	10,871	9,608	15,386	16,838	6,010	99,543
Boat Hours	3,581	3,088	1,790	4,326	2,851	4,068	5,493	8,606	4,161	37,963

Table 2. Monthly angler harvest and angler effort by species on the St. Joseph River during 2006.

Species	March	April	May	June	July	August	September	October	November	Total
Bluegill	231	143	1,026	1,010	613	1,467	1,727	501	178	6,897
Steelhead Trout	318	1,136	0	0	0	33	843	1,436	645	4,411
Rock Bass	0	145	1,666	773	539	325	338	363	0	4,148
Smallmouth Bass	0	133	59	695	440	441	178	58	0	2,002
Walleye	0	37	45	229	289	75	21	98	106	901
Channel Catfish	91	21	48	44	13	11	27	0	6	262
Pumpkinseed	0	0	0	150	21	86	0	0	0	256
Common Carp	0	0	125	0	0	18	0	0	0	142
Yellow Perch	0	0	0	62	21	53	0	0	0	136
Sucker Species	0	0	0	8	11	35	11	17	0	83
Largemouth Bass	0	0	0	0	0	39	37	0	0	76
Crappie	0	0	0	12	0	0	0	55	0	66
Coho Salmon	0	0	0	0	0	0	45	0	0	45
Chinook Salmon	0	0	0	0	0	0	0	33	0	33
Total	641	1,615	2,968	2,982	1,947	2,582	3,228	2,561	935	19,458
Angler Hours	7,374	18,805	10,049	17,387	13,722	13,676	20,880	25,443	10,171	137,506
Shore Hours	3,793	15,717	8,259	13,062	10,871	9,608	15,386	16,838	6,010	99,543
Boat Hours	3,581	3,088	1,790	4,326	2,851	4,068	5,493	8,606	4,161	37,963

Table 3. Fish species caught, harvested, and released by site on the St. Joseph River during 2006.

	Site 388			Site 389			Site 390		
Species	Catch	Harvest	Released	Catch	Harvest	Released	Catch	Harvest	Released
Smallmouth Bass	7,770	942	6,829	4,649	497	4,153	3,410	564	2,846
Smallmouth Bass Sub-legal	3,106	0	3,106	4,490	0	4,490	3,049	0	3,049
Rock Bass	2,233	371	1,863	7,460	2,137	5,323	6,969	1,641	5,328
Bluegill	2,041	1,115	925	4,797	1,420	3,376	15,144	4,361	10,783
Steelhead Trout	1,025	149	875	2,445	2,054	391	2,978	2,207	771
Steelhead Trout Sub-legal	139	0	139	2,209	0	2,209	2,341	0	2,341
Sucker	335	58	277	349	25	324	657	0	657
Walleye	318	179	139	818	466	352	648	257	391
Walleye Sub-legal	51	0	51	387	0	387	660	0	660
Largemouth Bass	77	13	65	185	0	185	852	63	789
Chinook Salmon	72	0	72	67	15	52	18	18	0
Channel Catfish	64	37	27	110	94	15	291	131	159
Yellow Perch	53	53	0	25	0	25	83	83	0
Common Carp	36	18	18	140	26	114	423	99	324
Coho Salmon	0	0	0	23	23	0	22	22	0
Brown Trout	0	0	0	0	0	0	28	0	28
Crappie	0	0	0	235	0	235	66	66	0
Pumpkinseed	0	0	0	551	57	494	723	199	524
Total	17,321	2,934	14,387	28,941	6,814	22,127	38,361	9,710	28,651

Table 4. Fish species caught, harvested, and released by fishing method on the St. Joseph River during 2006.

	Boat			Shore		
Species	Catch	Harvest	Released	Catch	Harvest	Released
Steelhead Trout	2,427	1,538	889	4,021	2,873	1,148
Steelhead Trout Sub-legal	599	0	599	4,089	0	4,089
Chinook Salmon	0	0	0	157	33	124
Coho Salmon	22	22	0	23	23	0
Brown Trout	28	0	28	0	0	0
Smallmouth Bass	10,635	645	9,990	5,194	1,357	3,837
Smallmouth Bass Sub-legal	5,975	0	5,975	4,671	0	4,671
Channel Catfish	139	0	139	325	262	63
Largemouth Bass	336	13	324	778	63	715
Bluegill	5,602	232	5,370	16,380	6,664	9,716
Walleye	416	174	241	1,368	726	642
Walleye Sub-legal	211	0	211	888	0	888
Rock Bass	6,235	920	5,315	10,427	3,229	7,198
Crappie	0	0	0	301	66	235
Pumpkinseed	176	0	176	1,099	256	843
Sucker Species	272	0	272	1,069	83	986
Common Carp	0	0	0	599	142	456
Yellow Perch	0	0	0	161	136	25
Total	33,073	3,545	29,529	51,550	15,913	35,636

Table 5. Fish species harvested, caught and released, and angler hours for creel surveys conducted on the St. Joseph River during 1985, 1986, 1992 - 2004, and 2006.

Species	1985*	1986*	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2006
Bluegill	5,652	754	NA	NA	NA	4,935	3,529	2,038	6,890	3,320	7,593	1,944	6,324	6,664	4,694	6,897
Steelhead Trout	620	899	963	2,189	3,859	4,034	8,889	4,702	4,548	6,651	10,302	3,367	1,324	2,170	5,294	4,411
Rock Bass	459	624	NA	NA	NA	1,986	645	349	2,577	1,078	867	251	850	1,281	1,112	4,148
Smallmouth Bass	4,681	4,309	107	2,418	3,253	2,568	1,981	1,404	5,714	1,523	1,175	90	825	463	213	2,002
Walleye	172	148	45	370	257	133	1,181	189	1,535	718	630	241	549	210	588	901
Channel Catfish	1,788	3,491	106	1,075	1,830	648	1,201	304	249	113	1,264	973	535	369	262	262
Coho Salmon	0	0	5	0	6	0	20	1,547	21	594	453	205	286	25	0	45
Chinook Salmon	0	0	928	34	298	445	970	391	1,026	1,885	668	243	82	143	0	33
Brown Trout	0	0	21	0	6	22	51	0	40	6	52	0	26	6	0	0
Smallmouth Bass C/R	3,543	6,192	0	0	18,384	19,061	16,293	6,252	51,619	4,801	2,331	1,480	1,979	1,323	11,580	24,472
Steelhead Trout C/R	NA	2,775	0	568	802	467	1,500	937	895	1,136	9,553	1,093	298	980	830	6,726
Walleye C/R	NA	NA	0	0	0	444	1,314	734	2,684	1,519	485	108	350	224	701	1,982
Chinook Salmon C/R	0	0	0	0	124	0	0	154	94	1,274	815	0	364	19	0	124
Coho Salmon C/R	0	0	0	0	0	0	0	0	0	0	77	26	35	18	0	0
Angler Hours	69,459	75,818	36,979	100,419	122,508	111,809	154,525	131,188	153,943	165,535	140,758	80,224	56,461	70,645	91,448	137,506

* Six month surveys, conducted by Indiana.

Table 6. Angler hours by site, fishing method, and day type on the St. Joseph River during 2006.

	Boat Effort		Shore Effort		Total Effort	
Site	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Site 388	2,925	2,594	9,365	5,177	12,290	7,771
Site 389	2,826	4,392	22,439	16,804	25,264	21,196
Site 390	12,496	12,731	23,915	21,843	36,411	34,574
Total	18,246	19,717	55,719	43,824	73,965	63,541

Table 7. Mean Length, standard error (SE), minimum length, maximum length, and sample size of fish species harvested from the St. Joseph River during 2006.

Species	Mean Length (in)	SE	Minimum	Maximum	Sample Size
Bluegill	6.5	0.06	3.5	10.0	447
Rock Bass	7.0	0.08	4.0	9.5	215
Smallmouth Bass	13.0	0.14	12.0	18.5	91
Walleye	17.0	0.38	15.0	26.0	40
Channel Catfish	18.0	1.36	6.5	26.5	14
Pumpkinseed	6.0	0.20	4.0	7.5	14
Sucker Species	15.0	0.35	14.0	15.5	4
Largemouth Bass	12.5	0.38	12.0	13.5	4
Crappie	11.5		11.5	11.5	1
Yellow Perch	7.5		7.5	7.5	1

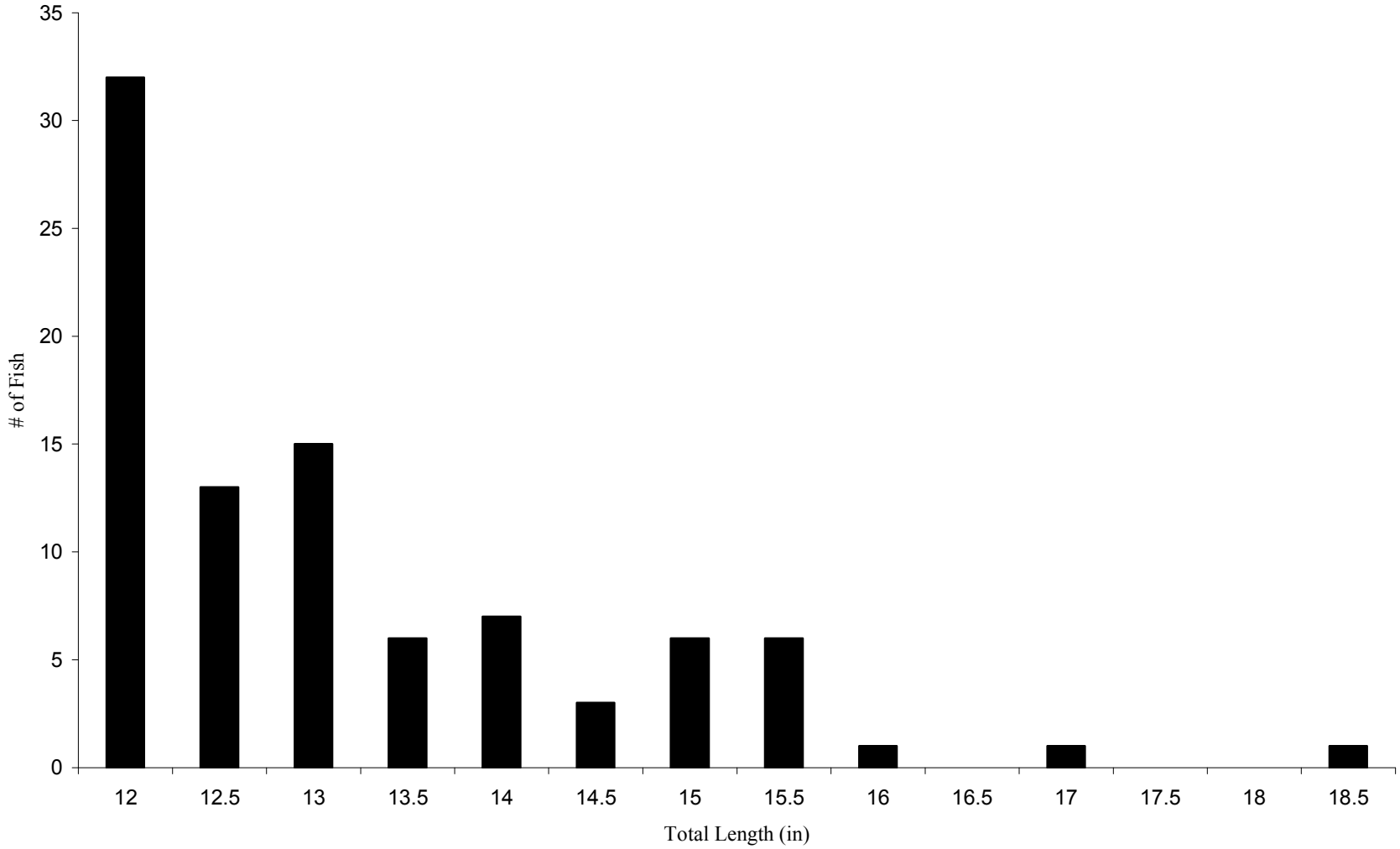

Figure 2. Length Frequency of Smallmouth Bass Harvested at Indiana Sites of the St. Joseph River

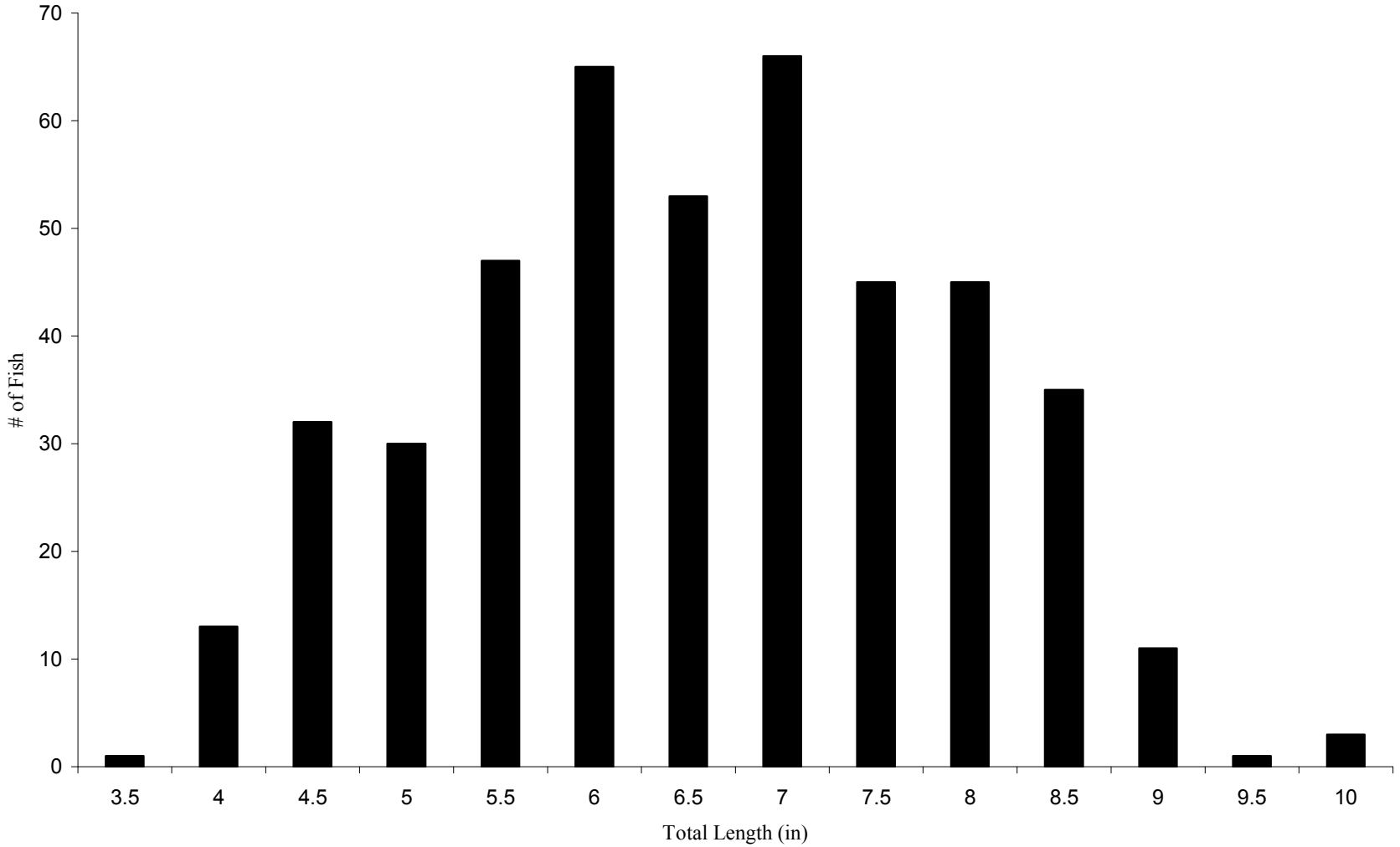

Figure 3. Length Frequency of Bluegill Harvested at Indiana Sites of the St. Joseph River

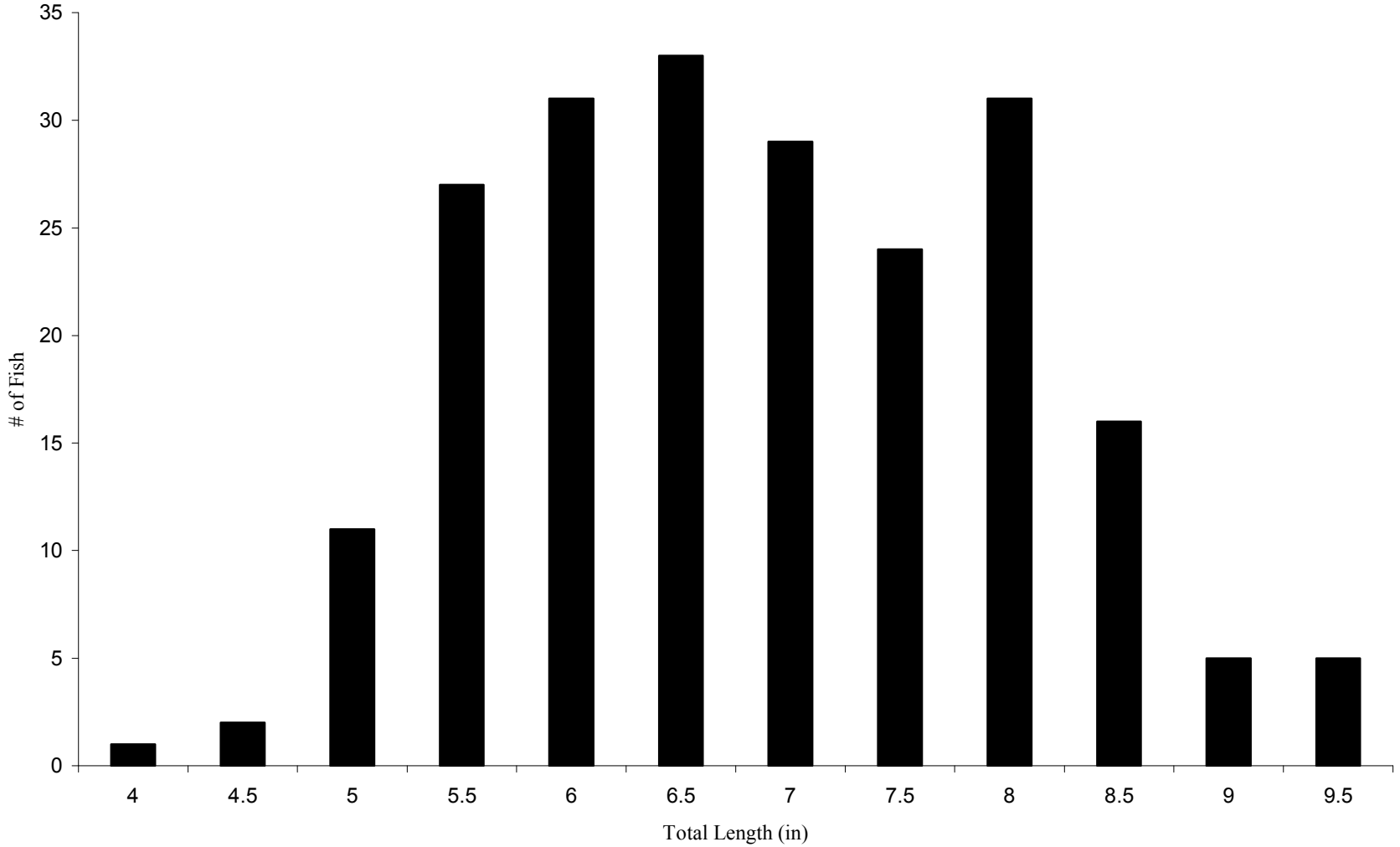

Figure 4. Length Frequency of Rock Bass Harvested at Indiana Sites of the St. Joseph River

Table 8. Mean Length, standard error (SE), minimum length, maximum length, mean weight, minimum weight, maximum weight, and sample size of female and male steelhead harvested from the St. Joseph River during 2006.

	Female	Male
Mean Length (in)	27.2	28.7
SE	0.2	0.2
Minimum Length	17.0	22.7
Maximum Length	33.0	36.8
Mean Weight (lb)	6.0	7.1
SE	0.1	0.2
Minimum Weight	1.6	3.8
Maximum Weight	12.4	14.3
Sample Size	123	91

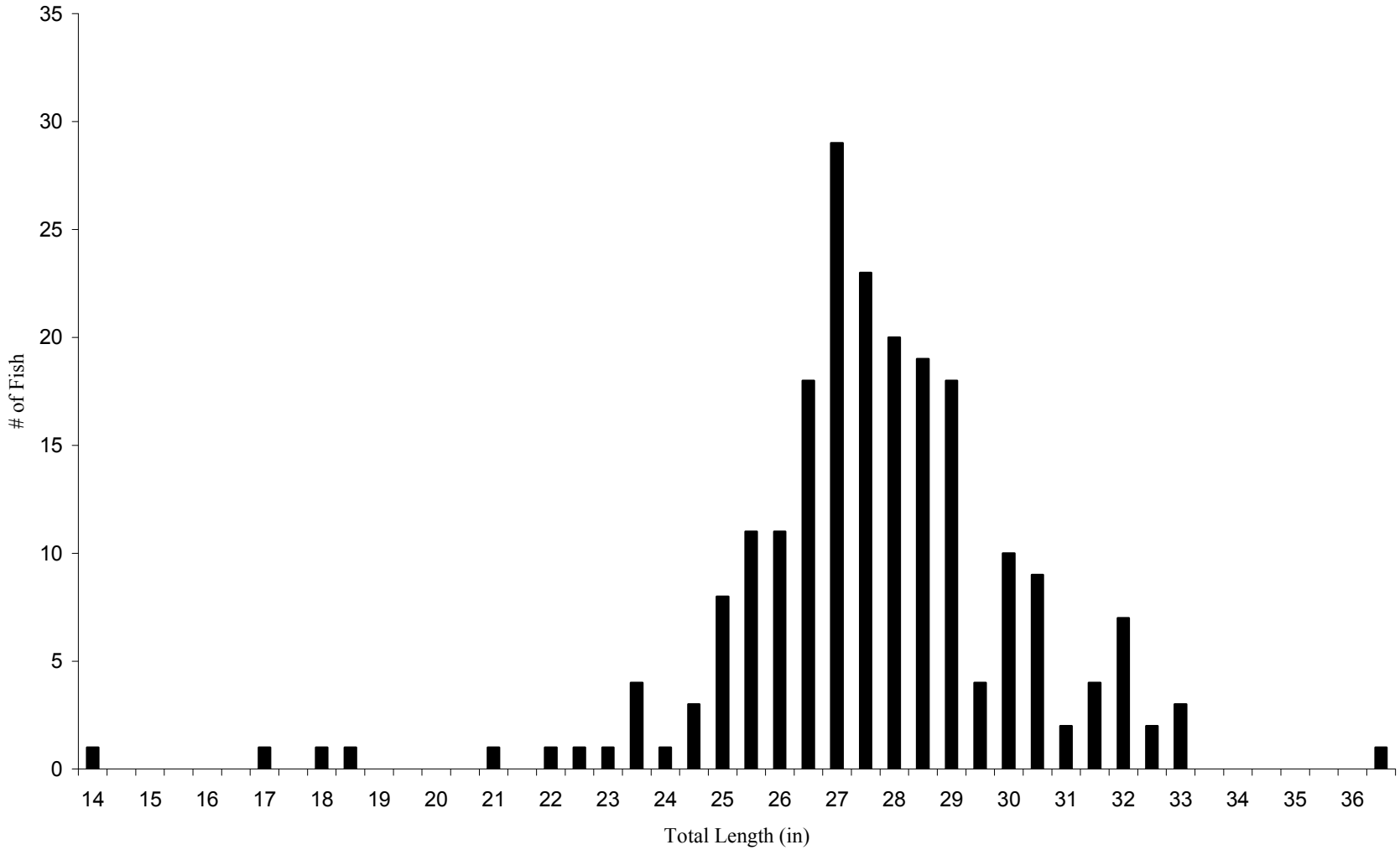

Figure 5. Length Frequency of Steelhead Harvested at Indiana Sites of the St. Joseph River

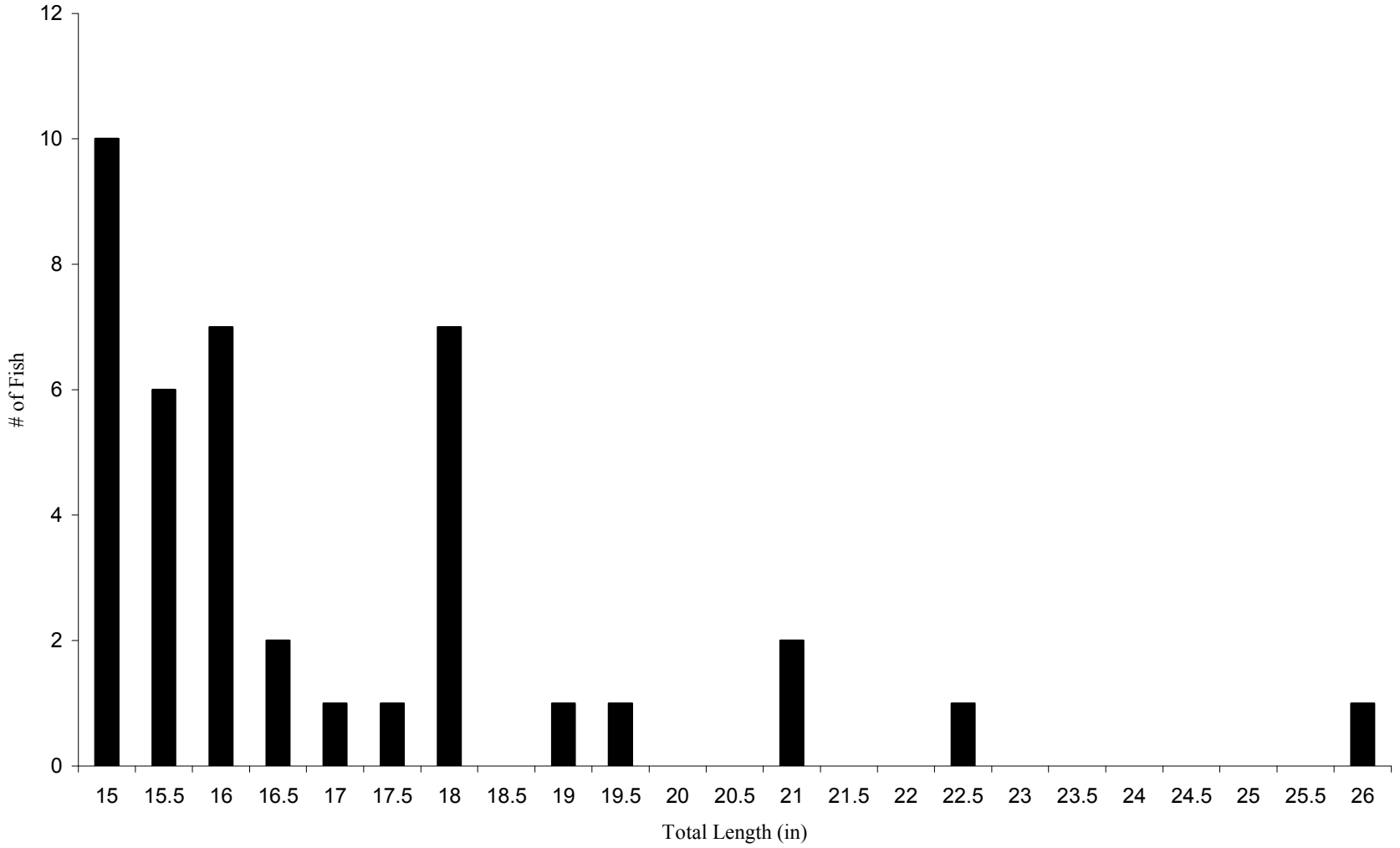

Figure 6. Length Frequency of Walleye Harvested at Indiana Sites of the St. Joseph River

Table 9. Species targeted by anglers fishing the St Joseph River during 2006.

Species	# of Interviews	Percentage
Steelhead Trout	714	37.4
Anything	545	28.6
Smallmouth Bass	254	13.3
Walleye	164	8.6
Bluegill	86	4.5
Catfish	78	4.1
Common Carp	26	1.4
Rock Bass	17	0.9
Largemouth Bass	13	0.7
Crappie	3	0.2
Chinook Salmon	2	0.1
Coho Salmon	2	0.1
Northern Pike	2	0.1
Sucker species	1	0.1
Total	1907	

Table 10. Species targeted by anglers fishing the St. Joseph River by month during 2006.

Species	March	April	May	June	July	August	September	October	November
Steelhead Trout	59	116	9	3	3	15	155	220	134
Anything	5	37	68	117	98	122	56	24	18
Smallmouth Bass	3	13	34	63	39	66	28	5	3
Walleye	11	5	15	24	25	24	15	17	28
Bluegill	3	4	18	19	10	13	13	5	1
Catfish	2	7	8	17	17	17	7	3	
Common Carp		3	7	5	5	5	1		
Rock Bass		6	3	3	5				
Largemouth Bass		4	4	4	1				
Crappie		1	1				1		
Chinook Salmon								2	
Coho Salmon							1	1	
Northern Pike			1				1		
Sucker species						1			
Total	83	196	168	255	203	263	278	277	184

Table 11. Residency of anglers fishing the St. Joseph River during 2006.

County	Code	# of Interviews	Percentage
St Joseph	71	1493	78.3
Elkhart	20	210	11.0
Marshall	50	26	1.4
*Other States	95	23	1.2
Michigan	93	18	0.9
Illinois	94	18	0.9
Kosciusko	43	16	0.8
Allen	2	14	0.7
Marion	49	11	0.6
Noble	57	10	0.5
LaPorte	46	9	0.5
Fulton	25	5	0.3
Hamilton	29	5	0.3
Tippecanoe	79	4	0.2
Adams	1	3	0.2
Dekalb	17	3	0.2
Howard	34	3	0.2
Porter	64	3	0.2
Starke	75	3	0.2
Brown	7	2	0.1
Decatur	16	2	0.1
Delaware	18	2	0.1
Franklin	24	2	0.1
Grant	27	2	0.1
Hendricks	32	2	0.1
Johnson	41	2	0.1
Miami	52	2	0.1
Wabash	85	2	0.1
Benton	4	1	0.1
Blackford	5	1	0.1
Clark	10	1	0.1
Clinton	12	1	0.1
Hancock	30	1	0.1
Huntington	35	1	0.1
Steuben	76	1	0.1
Union	81	1	0.1
Wayne	89	1	0.1
Wells	90	1	0.1
Not Recorded	None	2	0.1
Total		1907	

*Includes Florida, Kentucky, Maryland, Massachusetts, Missouri, Nebraska, New Jersey, Ohio, Texas, Virginia, and Wisconsin.

Table 12. Angler response when asked to rate the importance they place on having their targeted species in the St. Joseph River on a scale of 1 to 5, with 5 being the highest degree of importance during 2006.

Species	1	2	3	4	5	# of responses
Steelhead Trout	0.0	0.0	0.4	6.0	93.5	713
Smallmouth Bass	0.0	0.0	1.2	9.4	89.4	254
Walleye	0.0	0.0	2.5	11.0	86.5	163
Bluegill	0.0	0.0	1.2	17.4	81.4	86
Catfish	0.0	0.0	3.9	11.7	84.4	77
Common Carp	0.0	0.0	7.7	23.1	69.2	26
Rock Bass	0.0	0.0	0.0	5.9	94.1	17
Largemouth Bass	0.0	0.0	0.0	7.7	92.3	13
Crappie	0.0	0.0	0.0	33.3	66.7	3
Chinook Salmon	0.0	0.0	0.0	0.0	100.0	2
Coho Salmon	0.0	0.0	0.0	0.0	100.0	2
Northern Pike	0.0	0.0	0.0	0.0	100.0	2
Sucker species	0.0	0.0	0.0	0.0	100.0	1

Table 13. Angler response when asked to rate their satisfaction on the quality of the (enter targeted species) fishery in the St. Joseph River on a scale of 1 to 5, with 5 being the highest degree of satisfaction during 2006.

Species	1	2	3	4	5	# of responses
Steelhead Trout	0.0	0.3	14.7	56.7	28.3	713
Smallmouth Bass	0.4	2.8	25.6	48.4	22.8	254
Walleye	0.0	1.2	16.6	65.0	17.2	163
Bluegill	0.0	0.0	27.9	48.8	23.3	86
Catfish	0.0	1.3	23.4	57.1	18.2	77
Common Carp	0.0	0.0	30.8	42.3	26.9	26
Rock Bass	0.0	5.9	11.8	52.9	29.4	17
Largemouth Bass	0.0	7.7	23.1	53.8	15.4	13
Crappie	0.0	0.0	33.3	66.7	0.0	3
Chinook Salmon	0.0	0.0	0.0	50.0	50.0	2
Coho Salmon	0.0	0.0	0.0	100.0	0.0	2
Northern Pike	0.0	0.0	0.0	50.0	50.0	2
Sucker species	0.0	0.0	0.0	100.0	0.0	1

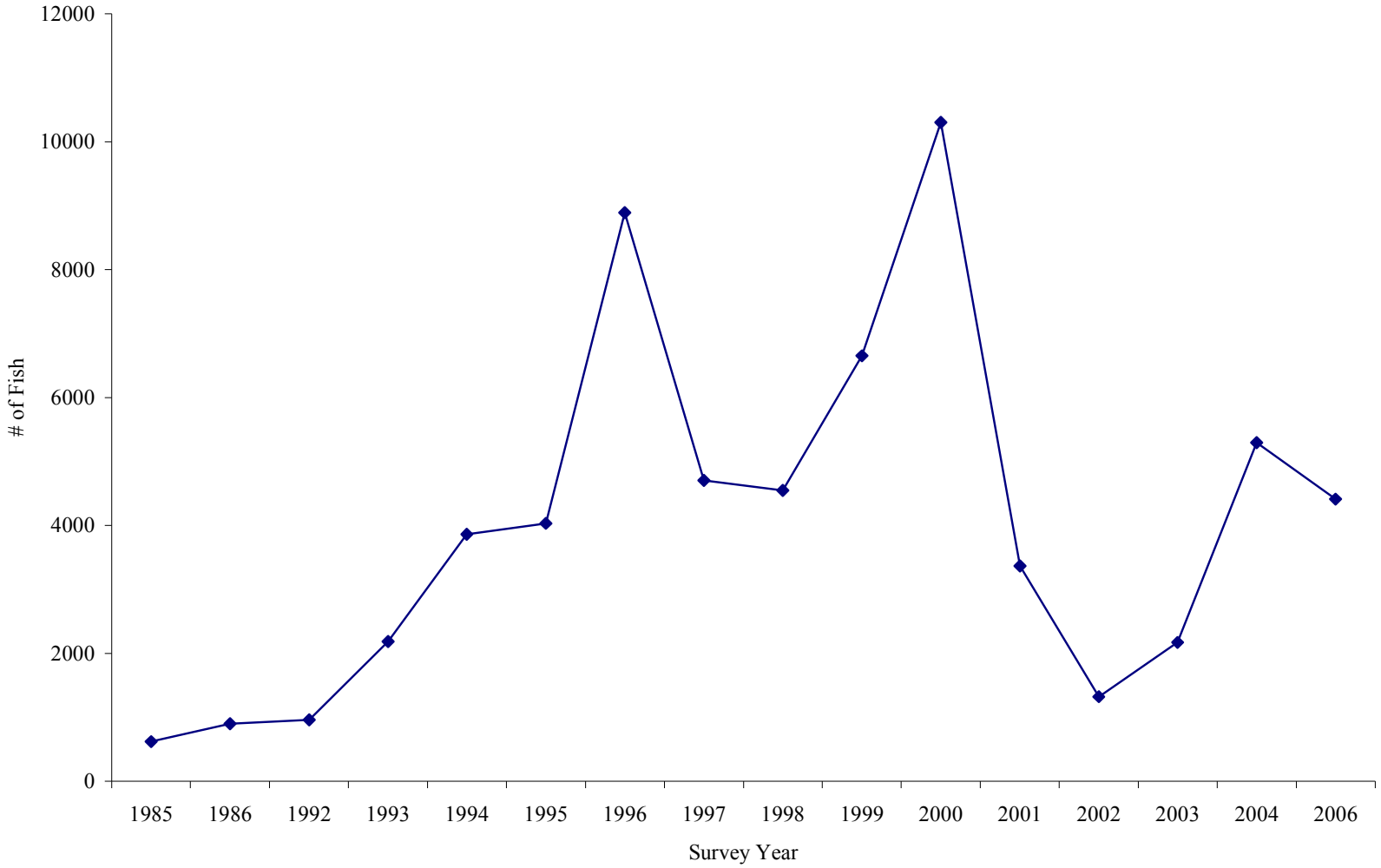

Figure 7 . Annual Steelhead Harvest at Indiana Sites of the St. Joesph River

Figure 8. Annual Channel Catfish Harvest at Indiana sites of the St. Joseph River

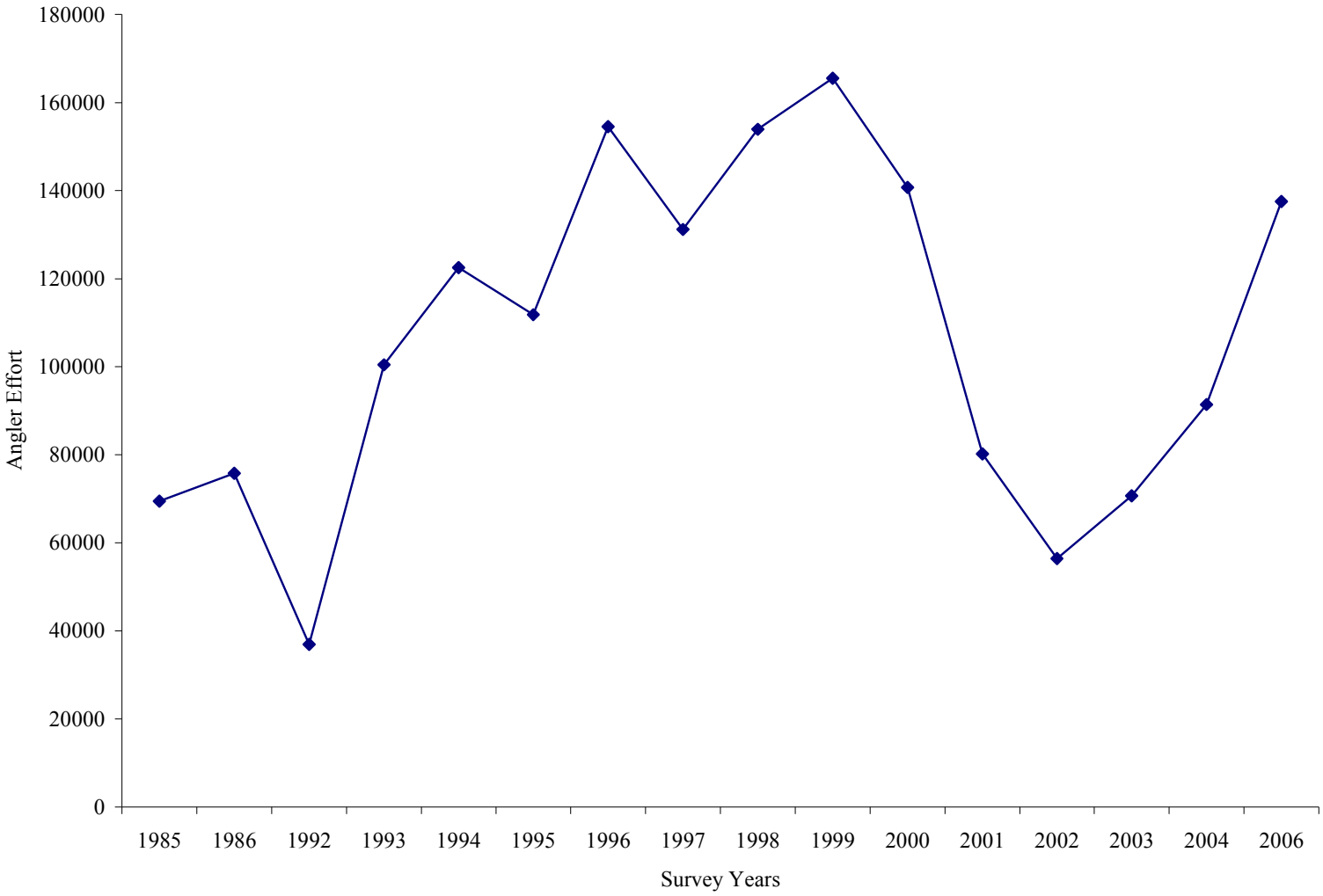

Figure 9. Annual Angler Hours at Indiana Sites of the St. Joseph River

Table 14. The number of salmonid species stocked into the St. Joseph River by the Indiana Department of Natural Resources.

Year	Chinook Salmon	Coho Salmon	Steelhead Trout	Total
1993	166,142	0	180,512	346,654
1994	168,938	0	172,975	341,913
1995	190,819	0	188,842	379,661
1996	209,407	75,980	254,135	539,522
1997	143,262	0	287,174	430,436
1998	206,987	0	299,869	506,856
1999	150,811	0	252,491	403,302
2000	149,911	0	220,439	370,350
2001	153,520	0	293,475	446,995
2002	0	0	306,297	306,297
2003	0	0	282,857	282,857
2004	0	0	278,109	278,109
2005	0	0	287,471	287,471
2006	0	0	194,210	194,210